UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Close Out Report

WADE (ABM) SITE

Chester, Pennsylvania

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The Wade Superfund site is an approximately 3 acre parcel of land located in Chester, Delaware County, Pennsylvania. The site is at the intersection of Flower Street and Delaware Avenue and is bounded on its southwestern side by the right-of-way of the Commodore Barry Bridge, on the northwest by Delaware Avenue and a railroad right-of-way, on the northeast by Philadelphia Electric Company property, and on the southeast by the Delaware River.

The Site previously housed the Eastern Rubber Recycling Co., a firm engaged in shredding tires, rubber and other post-consumer articles. Contamination of the site occurred when, during 1976 and after, drums of waste were emptied either directly onto the surface or into trenches. An estimated 10,000 drums of waste were disposed of at this site.

The Remedial Design and Remedial Action for the Wade site have now been completed and the site is now in the process of deletion from the National Priorities List (NPL).

Below is a summary of the site conditions, demonstration of quality assurance/quality control from construction activities, summary of operations & maintenance, and satisfaction of the deletion technical criteria.

SUMMARY OF SITE CONDITIONS

Investigations

In February, 1978, a severe fire occurred that destroyed much of the drummed waste stockpiled onsite. Following the fire, Pennsylvania's Department of Environmental Resources (DER) and EPA engaged a contractors to perform various remedial actions and studies at the site. A summary of these activities is as follows:

- In late 1979 and progressing into 1980 DER conducted an emergency cleanup of the site. A chain link fence was erected around the site and waste from 2600 intact, accessible drums and 5 tankers was removed and disposed of. In addition, drums of PCB wastes were overpacked and secured.

- In August, 1980, EPA funded a hydrogeologic study of the Wade Site. This study had, among its aims, the analysis of ground water flow, subsurface physical properties and ground water quality and the effect of site contamination on the nearby Delaware River.

- In September, 1981, EPA received authorization to begin another emergency cleanup which removed and disposed of all drums of PCB waste and intended to remove all remaining intact drums. All of the PCB wastes were disposed of, but funding ran out before all other drums could be removed (approximately 5000 drums were left on site).

- In 1982, the Wade Site was ranked on the NPL with a Hazard Ranking System (HRS) score of (b)(5)

- In November, 1983 CECOS Inc., under contract to DER, completed a site characterization and a review of selected remedial activities. The original intent of this study was (1) to sample and characterize the contamination in on site soils and (2) to stage and characterize the remaining hazardous and non-hazardous wastes for later disposal. However, because of the large number of drums remaining on site, it quickly became apparent that space limitations dictated that the drums be removed from the site before any further investigation could proceed.

After amendment to the original Scope of Work, the site characterization produced the following results:

1. All drums containing wastes (approximately 750) were sampled, repacked where necessary, bulked where possible, and shipped off site for disposal. The remaining (empty) drums were crushed and left on site.

2. Contents of debris piles were staged in separate, categorized locations, i.e., tires and shredded rubber, contaminated soils, scrap metals, scrap wood and crushed empty drums.

3. Surface and subsurface soil sampling found large areas of the site soils to be contaminated with greater than 100 mg/kg VOAs and BNAs to depths of up to 60 inches.

- No formal "Remedial Investigation" was ever conducted. However, based on the Hydrogeologic Investigation, the Site Characterization and the Review of Selected Remedial Activities,'

a Feasibility Study was completed in March 1984 by Metcalf & Eddy under contract to EPA's Office of Waste Programs Enforcement.

Record of Decision

The Record of Decision (ROD), signed August 30, 1984, concluded that cleanup at the site was necessary and determined that the remedy, listed below, would adequately protect public health, welfare and the environment. The selected alternative consisted of:

- removal and disposal of tires and tank trucks
- removal of on site waste piles
- demolition of on site buildings
- removal of contents of, and closing of, underground storage tanks
- removal and disposal of contaminated soil
- leveling of debris, filling and grading of property
- cover with topsoil and seed cap
- operation and maintenance activities to include inspection of the topsoil cap, sampling of ground water, maintenance the top soil cap, and re-seeding and mowing of the grass as necessary.

The ROD was based on the following conclusions drawn from the site investigation and endangerment assessment:

1. Inhalation/ingestion of contaminated soil was found to be the most serious route of exposure for persons entering or playing on the site. Lifetime risks of cancer (10^{-4}) from inhaling/ingesting small amounts of contaminated soil on site were higher than risks from other routes of exposure. Concentrations of benzene found on site were associated with risks of cancer 5-10 times those considered negligible. This finding applied only to the persons with chronic exposure to soil on the site. No evidence of potential, acute health effects were found.

2. Persons entering the site could have been exposed to toxic chemicals both in the air and in the contaminated soil and were, therefore, the most susceptible population at risk from contaminants at the site.

3. Drinking water and fish were not considered likely to be significant routes of exposure to chemicals from

ORIGINAL (Red)

the Wade site. Ground water beneath the site is not used as a source of drinking water and concentrations of chemicals in the Delaware River resulting from contaminated ground water discharge to it were estimated to be negligible.

4. Contamination on the Wade site was not expected to have a serious impact on the environment either through volatilization of chemicals to the air or release of contaminants via ground water to the Delaware River. Both releases were estimated to be extremely low.

There are no Federal or State "Applicable or Relevant and Appropriate Requirements" for either inhalation/ingestion of soils contaminated with volatile organics or inhalation of organic compounds vaporizing from soils contaminated with volatile organics.

Remedial Action

The remedial action began on January 8, 1987, with Rollins Environmental Services (RES) as the prime contractor and Roy F. Weston Inc. conducting oversight as on site representative for the DER and consisted of the following:

- Non Hazardous Debris Disposal

Seven abandoned tank trucks were removed from the site after having had all accumulated storm water pumped out of them. These tankers were crushed and transported to a scrap yard in New Jersey. RES also removed two piles of scrap metal and a pile of scrap wood.

- Disposal of Hazardous Waste In Surface Piles

This work was initiated with removal of two piles of contaminated soil. The soil was loaded onto dump trailers for transport to the GSX landfill in Pinewood, South Carolina. The trailers were lined with plastic sheeting prior to loading. Prior to departing the site, the loads were tarped to prevent loss of the soil during transportation and the required documents including weight records, bill of lading, and hazardous waste manifests were completed and provided to the transporter.

A second component of this work was the removal and disposal of five piles of contaminated tires and/or shredded rubber. RES utilized a transportable shredder to process the tires for volume reduction. Concurrent with the shredding work, RES fabricated a process for decontaminating the shredded rubber. The process consisted of two rotating cylinders fitted with internal spray bars and liquid collection sumps. Due to operational problems during shakedown of the rubber washing process, RES elected to decontaminate only a small portion of the shredded rubber. The shredded rubber was subsequently loaded into dump trailers and transported to GSX in Pinewood, South Carolina. The loading and recordkeeping procedures previously described for contaminated soil were also employed for the shredded rubber.

The last major component of the this work was closure of the underground tank near the former boiler house. RES estimated the size of the tank was approximately 10,000 gallons and learned that the tank contained a predominantly aqueous layer overlying a thick black sludge believed to be residual fuel oil for the boiler house.

A square opening was cold cut in the top of the tank to facilitate personnel entry. The wastewater layer was removed by transfer into a vacuum trailer and was disposed at Chem-Clear in Chester, Pennsylvania. The underlying sludge was removed using a high-vacuum truck. The sludge was subsequently transferred into drums and small, lined containers and staged adjacent to the former office building. Residual solids were removed using shovels and buckets prior to pressure washing the internal surfaces of the tank. The wastewater resulting from the pressure washing work was removed by vacuum truck and the tank was filled with sand.

- Excavation and Disposal of Hazardous Waste Soils

RES initiated excavation of soils within the grids located near the front fenceline. As described in the ROD, soils were removed to predetermined depths based on the sampling conducted during the site characterization. The depths were those at which the soil contamination was confirmed at a level of 100 mg/kg for the volatile organics fraction and 500 mg/kg for the BN/A extractable fraction. As the level of excavation had been specified by the previous testing, no confirmatory sampling was conducted during the soil removal.

The soils were stockpiled near the former office building prior to loading on dump trailers and transport to the GSX landfill in Pinewood, South Carolina for disposal. The trailers were lined with plastic sheeting and were tarped to prevent losses during transport. The required documents, including weight records, bills of lading and hazardous waste manifests were completed and provided to the transporter. Excavation of the soils along the front fenceline resulted in a noticeable aromatic odor; however, this was of very short duration and was observed only in the immediate vacinity of the excavation site (within approximately 25 feet). Perimeter air samples on the front fence revealed that air quality in the area was well below the action limits set for the site.

- Demolition and Rough Grading

All buildings and structures were demolished. Rubble generated by the demolition was backfilled on site.

The second component of this work was the placement of rough grade. Building rubble (structural fill) was utilized throughout much of the site as the initial backfill material. The fill was transported on site in a tandem axel dump truck and placed using a hydraulic excavator. The structural fill was covered with select fill imported from a nearby borrow source.

- Final Grading

The site work was essentially completed with the placement of final backfill and long-term site management controls. The rough grade was covered with 18 inches of select fill followed by a 6-inch layer of topsoil and mulch. The site was seeded by a hydroseeder.

The cleanup ended in mid-July, 1987, when all utilities were disconnected, the office and supply trailers were transported offsite and guard services were discontinued. A total of approximately 4500 yd^3 of hazardous waste and debris were removed from the site and disposed of. A detailed description of the Remedial Action is contained in the "Report on Implementation of the Final Remedial Actions at the Wade Site in Chester, Pennsylvania" which is contained in the deletion docket. The bibliography of the deletion docket is contained in Appendix A to this report.

DEMONSTRATION OF QA/QC FROM CONSTRUCTION ACTIVITIES

The remedial action at the site was conducted by Rollins Environmental Services (RES), under contract to the Commonwealth of Pennsylvania, Department of Environmental Resources (DER). As this was a State Lead Fund Financed response, DER monitored work acceptability through persons formally named as Cleanup Director and Site Representative. The Cleanup Director, a DER staff member, had ultimate responsibility for the site and for monitoring the Contractor's performance. The Site Representative was an employee of Roy F. Weston Inc. who was at the site full time and represented the Cleanup Director in his absence and was authorized to make specific decisions on behalf of the DER. All cleanup activities conducted at the site were done with concurrence of EPA.

RES documented its continuous quality control through submission of bi-monthly progress reports and construction phase completion reports. Progress meetings, required to be held bi-monthly, were conducted at a much greater frequency -as often as once per day during the early stages of work. Weston, as part of its oversight of RES's performance, prepared daily reports which documented, among other things, the worked performed, equipment and materials used, and any problems that occurred.

All construction activities are detailed in the Report on Final Remedial Action at the Wade Site - Chester, PA, Vols I & II Appendix D (Daily Reports) and Appendix V (Contractor Progress Reports) which report is contained in the deletion docket.

SUMMARY OF OPERATION AND MAINTENANCE

The Wade (ABM) Site Operation and Maintenance Plan contains the following items:

Site inspection, sampling of existing monitoring well pairs, and general site maintenance including maintenance of the top soil cap. Each of these items is addressed below.

Site Inspection

The site inspection will include a visual inspection of surface conditions and the monitoring wells. This inspection will include checking for any erosion of the cap, areas which may need to be reseeded, any breaches in the security fence and any other major changes in the overall site conditions.

Site Maintenance

Maintenance of the topsoil cap and security fence will be performed on an "as needed" basis based on the above yearly inspections.

Once the topsoil cap has been constructed and it has been sodded, the new grass will be mowed periodically during the growing season.

Ground Water Sampling

A total of four monitoring well clusters will be sampled. Both the shallow and deep wells will be sampled at each monitoring well location. The four clusters include one located upgradient and three located downgradient along the southwest perimeter of the site. The purpose of this sampling is to determine ground water quality before ground water enters the site and ground water quality as it leaves the site. The water samples will be analyzed for volatile and BN/A extractable organics based upon contaminants identified in previous site sampling. After five years of sample collection the need for continuation of the sampling program will be re-evaluated.

The above mentioned Operation and Maintenance program will be conducted by the Pennsylvania Department of Environmental Resources (DER). The Commonwealth of Pennsylvania formally agreed to conduct this program in a memo dated June 23, 1988.

ORIGINAL (Red)

SATISFACTION OF DELETION CRITERIA

The chosen remedial alternative outlined excavation of soils down to depths where contaminant levels were 100 mg/kg volatile organic compounds and 500 mg/kg base neutral/acid extractable compounds or less. There were (and are) no standards for exposure to compounds of these types in soils. In order to protect the public against exposure by direct contact with these contaminated soils, contaminated surface debris and waste was removed from the site as well as contaminated soils, which were excavated to depths at which the criteria was met (up to 5 feet in some areas) and then transported off site. Incidental surface debris and major surface obstructions (such as buildings) were also removed. Specifically, the following measures were accomplished at the Wade site:

- removal and disposal of contaminated tires, tank trucks, storage tank and waste piles
- demolition of on site buildings
- excavation, removal and disposal of contaminated soils
- leveling, filling and grading of the property, and construction of a topsoil cap

Approved: _____ 6-29-88
James M. Seif
Regional Administrator
Date